

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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In re Application of: Jeffrey Earl TELSCHOW : Docket: ACA 6284 P1US  
Serial No.: 10/534,156 : Group Art Unit: 1626  
Filing Date: May 5, 2005 : Examiner: Sun Jae Y. Loewe  
For: PURIFICATION DECOLORIZATION  
TREATMENT FOR FATTY NITRILES : Confirmation No.: 1415

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Commissioner for Patents  
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BRIEF ON APPEAL

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**Brief on Appeal**

**I. INTRODUCTION**

Pursuant to the provisions of 35 U.S.C. §134 and 37 C.F.R. §§1.191 and 1.192, this paper is submitted as a brief setting forth the authorities and arguments upon which Appellant relies in support of the Appeal from the Final Rejection of claims 1-20 entered in the above-identified patent application on December 11, 2008 and maintained in the Advisory Action mailed December 4, 2009.

**II. REAL PART IN INTEREST**

The real party in interest in the present case is Akzo Nobel nv, Arnhem, The Netherlands.

### **III. RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences pending or anticipated involving the present application.

### **IV. STATUS OF THE CLAIMS**

The present application was filed on May 5, 2005. Claims 1-20 are pending in the application.

### **V. STATUS OF THE AMENDMENTS**

An Amendment after final rejection was filed on June 9, 2009. No amendments to the claims were made after final rejection.

### **VI. SUMMARY OF THE CLAIMED SUBJECT MATTER**

Independent claim 1 relates to a process for the removal of long-chain aliphatic amide impurities from a solution of said amides and fatty acid-derived nitriles which comprises washing said solution with an amount of a strong acid effective to remove the amide as a salt in the acid layer, separating said acid layer from said solution leaving an acid-treated fatty acid-derived nitrile substantially free from said amide impurities.

Claim 2 specifies that 0.1 to 15 wt% of said strong acid is employed.

Claim 3 claims the strong acid is from a Markush grouping of sulfuric acid, hydrochloric acid, hydrobromic acid, perchloric acid, nitric acid, fluorosulfonic acid, methanesulfonic acid, trifluoromethanesulfonic acid, toluenesulfonic acid, phosphoric acid or mixtures thereof in combination with an amount of water that allows an amide salt to remain substantially insoluble in excess aqueous acid.

Claim 4 specifies that the process is conducted at ambient temperature and atmospheric pressure while claim 5 optionally includes 0.5 to 5% of filter aid

Claim 6 provides for agitation while claim 7 claims that the strong acid comprises sulfuric acid.

Claim 8 is dependent on claim 7 and indicates that 50 to 70% sulfuric acid is employed, while claim 9 claims that up to 5 wt% of 50 to 70% sulfuric acid solution is employed.

Claim 10 provides for a decolorization step; claim 11 specifies that said decolorization step comprises contacting said acid-treated nitrile with a color-removing adsorbent; and claim 12 specifies that said adsorbent is selected from the group consisting of clays, activated carbons, alumina, silica gel, zeolites and mixtures thereof.

Claim 13 claims that 0.1 to about 5% of said adsorbent is employed, while claim 14 specifies that the adsorbent comprises a bentonite clay, and said reaction mixture is in the form of a slurry of finely divided particles of said clay with said solution.

Independent claim 15 claims a process for the purification and decolorization of fatty acid-derived nitriles containing long-chain aliphatic amide impurities which comprises washing a solution of said amides and fatty acid-derived nitriles with an amount of a strong acid effective to remove the amide as a salt in the acid layer, separating said acid layer from said solution leaving an acid-treated fatty acid-derived nitrile substantially free from said amide impurities, and thereafter contacting said acid-treated nitrile with an adsorbent in an amount effective for color reduction.

Claim 16 specifies that the strong acid is selected from the group consisting of sulfuric acid, hydrochloric acid, hydrobromic acid, perchloric acid, nitric acid, fluorosulfonic acid, methanesulfonic acid, trifluoromethanesulfonic acid, toluenesulfonic acid, phosphoric acid and mixtures thereof in combination with an amount of water that allows an amide salt to remain substantially insoluble in excess aqueous acid and mixtures thereof.

Claim 17 specifies that the adsorbent is selected from the group consisting of clays, activated carbons, alumina, silica gel, zeolites and mixtures thereof; while claim

18 provides that 0.1 to 15 wt% of said strong acid is employed and 0.1 to about 1% of said adsorbent is employed.

Finally, claim 19 specifies that the acid is sulfuric acid; said adsorbent comprises a bentonite clay, and said reaction mixture is in the form of a slurry of finely divided particles of said clay with said solution; while claim 20 claims the process conducted at ambient temperature and atmospheric pressure.

## **VII. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

1. Do claims 1-20 stand properly rejected under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite?
2. Are claims 1-7, 10-12 and 13-19 properly rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 4,575,434 ("Frank")?
3. Are claims 8, 9 and 20 properly rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Frank?

## **VIII. ARGUMENT**

### **I. The Rejection of Claims 1-20 Under Section 112, Second Paragraph**

Claims 1-20 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Specifically, the Office asserts that "substantially" is a relative term that is allegedly not defined in specification. According to the Office, which cites to M.P.E.P. § 2173.05(b)(F), absent "a specific standard of measuring the degree intended," the "inclusion of the relative term renders the claim indefinite." (Office Action mailed June 9, 2008, page 2).

Regarding the use of the term "substantially," Appellant submits that, as set forth in M.P.E.P. § 2173.05(b)(D), the use of "substantially" does not automatically render the claims indefinite.

D. "Substantially"

[t]he term "substantially" is often used in conjunction with another term to describe a particular characteristic of the claimed invention. It is a broad term. *In re Nehrenberg*, 280 F.2d 161, 126 USPQ 383 (CCPA 1960). The court held that the limitation "to substantially increase the efficiency of the compound as a copper extractant" was definite in view of the general guidelines contained in the specification. *In re Mattison*, 509 F.2d 563, 184 USPQ 484 (CCPA 1975). The court held that the limitation "which produces substantially equal E and H plane illumination patterns" was definite because one of ordinary skill in the art would know what was meant by "substantially equal." *Andrew Corp. v. Gabriel Electronics*, 847 F.2d 819, 6 USPQ2d 2010 (Fed. Cir. 1988).

Accordingly, where the Office asserts that a specific standard for measuring the degree intended is required, the courts, to the contrary, have found the term "substantially" to be definite where "one of ordinary skill in the art would know what was meant" by the term, or to be definite in view of general guidelines contained within the specification. Appellant submits, therefore, that contrary to the Office's assertion, the absence of a "specific standard of measuring the degree intended" in the specification does not necessarily render the claim indefinite.

Appellant's claim 1 (and similarly claim 15) recites, in pertinent part, the step of "separating said acid layer from said solution leaving an acid-treated fatty acid-derived nitrile substantially free from said amide impurities." (emphasis added). Appellant submits that one of ordinary skill in the art would understand what the term "substantially free from said amide impurities" means. In addition, the specification provides general guidance as to the meaning of the term, such as through the nonlimiting example in which the amide wt% before treatment was 0.19, but after treatment was <0.02 (undetectable). Consequently, Appellant submits that the term "substantially" as used by Appellant is definite, and that the rejection of claims 1-20 should be withdrawn.

Furthermore, the Office asserts that it is unclear "what Appellant intends the structural metes and bounds of 'fatty acid-derived nitrile' to be." (emphasis in original)(Office Action, page 2). In the rejection, the Office provides a definition for the

term "derivative" as "organic compounds obtained from another compound by the simple chemical process or an organic compound containing a structural radical similar to that from which it is derived (Hackh's chemical dictionary, 1972)." (Office Action of June 9, 2008, page 3).

Appellant respectfully disagrees that the term "fatty acid-derived nitrile" as used by Appellant is indefinite. It is basic chemistry that a "nitrile" is an organic compound having molecular structures in which a cyano group ( $-C \equiv N$ ) is attached to a carbon atom (C). Accordingly, the term "fatty acid-derived nitrile" is directed to a nitrile derived from a fatty acid. The specification itself states, "[f]atty nitriles, those derived from fatty acids . . ." (Specification, page 1, line 7). Further, exemplary nitrile feedstocks of primary interest in the present invention can fall into one of three types, such as "coco-nitrile", "tallow-nitrile" and "oleo-nitrile". (See specification, page 4, lines 4-5). Accordingly, Appellant submits that the metes and bounds of the term "fatty acid-derived nitrile" is clear to one of ordinary skill in the art, both from the claim itself and further in view of the specification. Consequently, claims 1-20 are definite and the rejection should be withdrawn.

In the Office Action mailed December 11, 2008, the only rebuttal that the examiner provided was the following statement:

"Applicants remarks have been considered. However, it is maintained that the examples do not delineate the scope for the claimed invention."

(Page 2, under heading 3.a) of the Office Action.)

Appellants respectfully submit that this is not an informative rebuttal in that the examiner stated that she disagrees, but failed to provide the necessary reasoning and/or support for her position. This has left Appellants wondering how they can/should respond. Appellants clearly and repeatedly expressed their concern and requested clarification both in their Response filed June 9, 2009 and in their Response filed November 17, 2009. No clarification was provided by the examiner.

In view of the lack of informative rebuttal, Appellants are forced to rely on their arguments of record. The Honorable Board is respectfully requested to reverse the examiner basis for rejecting claims 1-20 under Section 112.

**II. The Rejection of Claims 1-7, 10-12 and 13-19 under Section 102(b)**

The Office asserts that Frank discloses the process instantly claimed. Appellant respectfully disagrees. Frank discloses a process for the removal of long-chain aliphatic amides from a solution of amides and fatty acid-derived nitriles. In Frank, both a layered mineral comprising an aluminum silicate and an acid strong enough to protonate the amides are employed. The process of Frank operates by the adherence of the protonated amides to the surface of the layered mineral and the precipitation of a salt of the acid. (See description of second and third steps of Frank, at col. 3, lines 46-59). The precipitate layer and the layer mineral are then removed by filtration, such as by using one or more vacuum filter assemblies. (See Frank, col. 4, lines 56-60).

As recited in independent claims 1 and 15, Appellant's invention is directed to a process for the removal of long-chain aliphatic amide impurities from a solution of the amides and fatty acid-derived nitriles. The process comprises washing the solution with an amount of a strong acid effective to remove the amide as a salt in the acid layer. The process further includes separating the acid layer from the solution leaving an acid-treated fatty acid-derived nitrile substantially free from the amide impurities. As noted in Appellant's specification, in an embodiment of the invention, typically, after about 30 minutes of reacting a strong acid with the reaction mixture, the amide impurity is removed into the lower, dark acid layer, probably as salt. (Specification, page 5, lines 17-18). Separation of the acid layer from the solution can be accomplished by draining the thick, liquid amide salt layer from the upper purified nitrile layer or by decantation of the nitrile layer. (Specification, page 7, lines 21-24).

Contrary to the Office's assertions, Frank does not anticipate Appellant's invention, as recited in the pending claims. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Here, the Office has rejected the pending claims as anticipated by Frank, in direct contradiction to the distinguishing features identified in the International Preliminary Examination Report issued on PCT application PCT/EP03/12834, for which the present application is a National Stage application. As correctly set forth in the Report, "D2 [i.e. Frank] differs from the present application in that in the former [i.e. in Frank], no acid layer is formed and therefore, of course, an acid layer is not separated from said solution." (emphasis added) (International Preliminary Examination Report for International Application PCT/EP03/12834, Item V). For at least this reason identified by the International Preliminary Examining Authority in its Report (and for which novelty of the invention was found), Appellant's invention, as recited in independent claims 1 and 15, is distinguishable over Frank.

In response to Appellant's arguments, the examiner merely states that:

"the reference teaches addition of an acid to a solution of amide and nitrile, although it does not expressly disclose the formation of an acid layer... and subsequent separation of from the nitrile"

(Page 2, paragraph 3. b) of the Office Action mailed June 17, 2009 , emphasis ours.

In this statement, the examiner clearly acknowledges, on the record, that Frank does not disclose the formation of an acid layer, or the subsequent separation of same from the nitrile. Appellant respectfully submits that these acknowledged differences alone are sufficient to defeat the rejection of Appellant's claims under section 102. This was all brought to the attention of the examiner and clarification was respectfully requested; unfortunately none was provided.

In view of the aforementioned differences both pointed out by Appellant and those acknowledged by the examiner, Appellants respectfully submit that Frank clearly cannot be considered to anticipate the invention as claimed in independent claims 1 and 15. Similarly, dependent claims 2-7, 10-12 and 13, 14 and 16-19 are not anticipated by Frank for at least the same reasons as presented with respect to claims 1 and 15 from which the respectively depend. Consequently, the present rejection is believed to be improper and the Honorable Board is respectfully requested to reverse the examiner's rejection of claims 1-7, 10-12 and 13-19 under Section 102(b).

### III. The Rejection of Claims 8, 9 and 20 under § 103(a) Over Frank.

Claims 8, 9 and 20 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Frank. Appellant submits that claims 8, 9 and 20 are patentable over the Frank for at least the reasons that claims 1 and 15, from which they respectively depend, are patentable, but may be separately patentable for additional reasons as well.

In response to Appellants arguments, the following is the only rebuttal provided by the examiner:

"Claims 1 and 15 remain rejected".

See Office Action of June 17, 2009, page 3, first sentence after the second shaded paragraph.

It appears that the examiner's position is that the rejection of claims 8, 9 and 20 under section 103 stands or falls with the rejection of claims 1 and 15 under section 102. Appellant disagrees and submits that even if Claims 1 and 15 are anticipated under section 102 (which is not the case), the examiner still has the initial burden of supporting the rejection of claims 8, 9 and 20 under section 103. Merely stating that

claims 1 and 15 remain rejected under section 102 is not enough to support the present rejection under section 103.

In view of the foregoing, Appellant respectfully submits that the present rejection is unsupported and/or improper, and therefore should be considered improper; reconsideration and withdrawal thereof is respectfully requested.

*As a final point, the undersigned has, on several occasions during the prosecution of this case sought clarification regarding the rejections of record. This included requests that the examiner provide, in her rebuttal, reasons why Appellant's arguments were not sufficient to overcome the particular rejection in question. Why did Appellant request clarification? The reason for this is simple. If Appellant does not understand the basis for the examiner's rejections, or if the examiner does not identify why Appellant's arguments are deficient, then neither the examiner nor the Appellant can narrow and/or adequately define the issues for Appeal. And...it is clearly the responsibility of both the examiner and the Appellant, if not the duty of both, to work together to try to concisely define the issues for Appeal, and in this shared responsibility if one fails, both fail. In the present case, it is respectfully submitted that a better job could have been done in framing the issues for Appeal.*

Conclusion

In view of the arguments presented herein Appellant respectfully submits that the pending claims stand improperly rejected. The Honorable Board is therefore respectfully requested to reverse the Examiner and pass all of the pending claims to issue.

Respectfully submitted,



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## **IX. CLAIMS APPENDIX**

1. A process for the removal of long-chain aliphatic amide impurities from a solution of said amides and fatty acid-derived nitriles which comprises washing said solution with an amount of a strong acid effective to remove the amide as a salt in the acid layer, separating said acid layer from said solution leaving an acid-treated fatty acid-derived nitrile substantially free from said amide impurities.
2. The process of claim 1 wherein 0.1 to 15 wt% of said strong acid is employed.
3. The process of claim 1 wherein said strong acid is sulfuric acid, hydrochloric acid, hydrobromic acid, perchloric acid, nitric acid, fluorosulfonic acid, methanesulfonic acid, trifluoromethanesulfonic acid, toluenesulfonic acid, phosphoric acid or mixtures thereof in combination with an amount of water that allows an amide salt to remain substantially insoluble in excess aqueous acid.
4. The process of claim 1 wherein said process is conducted at ambient temperature and atmospheric pressure.
5. The process of claim 1 wherein 0.5 to 5% of filter aid is optionally present.
6. The process of claim 1 wherein agitation is employed to maximize the contacting of said strong acid and said amide impurity.
7. The process of claim 1 wherein said strong acid comprises sulfuric acid.

8. The process of claim 7 wherein 50 to 70% sulfuric acid is employed.
9. The process of claim 8 wherein up to 5 wt% of 50 to 70% sulfuric acid solution is employed.
10. The process of claim 1 which further comprises a decolorization step.
11. The process of claim 10 wherein said decolorization step comprises contacting said acid-treated nitrile with a color-removing adsorbent.
12. The process of claim 11 wherein said adsorbent is selected from the group consisting of clays, activated carbons, alumina, silica gel, zeolites and mixtures thereof.
13. The process of claim 11 wherein 0.1 to about 5% of said adsorbent is employed.
14. The process of claim 11 wherein said adsorbent comprises a bentonite clay, and said reaction mixture is in the form of a slurry of finely divided particles of said clay with said solution.
15. A process for the purification and decolorization of fatty acid-derived nitriles containing long-chain aliphatic amide impurities which comprises washing a solution of said amides and fatty acid-derived nitriles with an amount of a strong acid effective to remove the amide as a salt in the acid layer, separating said acid layer from said solution leaving an acid-treated fatty acid-derived nitrile substantially free from said amide impurities, and thereafter contacting said acid-treated nitrile with an adsorbent in an amount effective for color reduction.

16. The process of claim 15 wherein said strong acid is selected from the group consisting of sulfuric acid, hydrochloric acid, hydrobromic acid, perchloric acid, nitric acid, fluorosulfonic acid, methanesulfonic acid, trifluoromethanesulfonic acid, toluenesulfonic acid, phosphoric acid and mixtures thereof in combination with an amount of water that allows an amide salt to remain substantially insoluble in excess aqueous acid and mixtures thereof.

17. The process of claim 15 wherein said adsorbent is selected from the group consisting of clays, activated carbons, alumina, silica gel, zeolites and mixtures thereof.

18. The process of claim 15 wherein 0.1 to 15 wt% of said strong acid is employed and wherein 0.1 to about 1% of said adsorbent is employed.

19. The process of claim 15 wherein said acid is sulfuric acid and said adsorbent comprises a bentonite clay, and said reaction mixture is in the form of a slurry of finely divided particles of said clay with said solution.

20. The process of claim 15 wherein said process is conducted at ambient temperature and atmospheric pressure.

X. EVIDENCE APPENDIX

None

XI. RELATED PROCEEDINGS APPENDIX

None.